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EXAMINER	
ZAIDI, IQBAL	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,209	NAVEN ET AL.	
	Examiner	Art Unit	
	IQBAL ZAIDI	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1047* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to applicant's amendment filed on Jan 04, 2010 for Application No. 10/590209.

2. Claims 1-47, are pending in this application. Claims 1, and 19, and 26, and 34, and 36, and 39 are amended by applicant's amendment.

3. Applicant's arguments in respect to the new issues of claims 1, and 19, and 26, and 34, and 36, and 39 have been considered but they are not persuasive.

Claim objections

4. "adapted " on lines 2 of claim 31, and on line 2 of claim 32, and on line 1 of claim 41, should be "configured to" since language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. See also MPEP § 2111.04.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. **Claims 19 and 36 and 41** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In this case, applicant has claimed a **"Signalling protocol" for causing a computer to "execute" instructions in the preamble of the claim**; this implies that Applicant is claiming a system of software, per se, lacking the hardware necessary to realize. Therefore, **claims 19 and 36 and 41** are directed to non-statutory subject matter as computer programs, per se, i.e. the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claims 1-17** are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view of Carlsen et al (20050088969, Apr. 28, 2005)

Regarding **Claim 1**, Paquette discloses sending a message to an upstream port connected to the first ingress or egress port indicating that congestion has occurred at a particular port *(See Fig 1, column 3, shows that If congestion occurs at the congested port 132 of the frame relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126(upstream port))* and requesting storage at the upstream port of data packets destined for that port *(See Fig 3, column 6, the internetworking module 28(shows block diagram of internetworking switch 126) store indication of the congestion information in the congestion register 34);* and, in dependence on the amount of data packets destined for the congested port stored at said upstream port *(column 1, The congestion information is network service dependent, in ATM systems, congestion can be indicated between sources and destinations through the use of resource management (RM) and backward resource management (BRM) cells (amount of data packets) that carry congestion indications),* Sending from the upstream port to a further upstream port a message informing said further upstream port of the congestion at the first ingress or egress congested port*(column2-3, See Figs 1-6, shows a network that includes a source 102, a destination 142, frame relay switches 110 and 130, internetworking switches 122 and 126, and ATM switch 124. The source 102 generates data to be transmitted to the destination 142. The data stream from the source is carried through the frame relay switch 110, ATM cloud 120, and the frame relay switch 130 to the destination 142. If congestion occurs at the congested port 132 of the relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking*

switch 126, the BECN indication is intended to inform upstream neighbors of the frame relay switch 130 that the switch is overloaded, and additional delays may be incurred by data passing through the switch), said further upstream port storing at said further upstream port data packets destined for the first ingress or egress congested port*(See Fig 3, column 6, the internetworking module 28(shows block diagram of internetworking switch 126) store indication of the congestion information in the congestion register 34)*.

Paquette discloses all aspects of the claimed invention, except *congestion management within a switch or network of connected switches wherein the or each of the switches has a plurality of ingress ports and a plurality of egress ports, the method comprising: when congestion is detected at a first ingress or egress port.*

Carlsen is the same field of invention teaches congestion management within a switch or network of connected switches wherein the or each of the switches has a plurality of ingress ports and a plurality of egress ports *(page 1, Fibre Channel is used to connect one or more computers or workstations together with one or more storage devices, each of these devices is considered a node. One node can be connected directly to another, or can be interconnected such as by means of a Fibre Channel fabric. The fabric can be a single Fibre Channel switch, or a group of switches acting together. Technically, the N_port (node ports) on each node are connected to F_qorts (fabric ports) on the switch. Multiple Fibre Channel switches can be combined into a single fabric. The switches connect to each other via E-Port (Expansion Port) forming an interswitch link or ISL)*, the method comprising: when congestion is detected at a first

ingress or egress port *(page 1, If a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected)*.

Paquette and Carlsen are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Paquette to include the teaching of Carlsen because it is providing a technique for noticing port congestion and informing ingress ports of the congestion.

Regarding **Claim 2**, Paquette discloses a method according to claim 1, comprising at said upstream port, allocating memory for use as a set-aside- queue for data packets destined for the congested port *(column 6, The processing module 70 and memory 72 to memory 32. The internetworking module 66 is coupled to a congestion register 68 that used to store an indication of congestion)*.

Regarding **Claim 3**, Paquette discloses at said upstream port creating an entry in a memory to indicate that congestion has occurred at the particular port *(column 7, The path towards the CLLM indication is an explicit notification that a particular connection is experiencing congestion)*; and, checking packets subsequently received at the upstream port against the entry in the memory and, if a packet is directed to the congested port, storing said packet in the corresponding set aside queue *(column 8, When the congestion cell is detected, an indication of the receipt of the congestion*

indication cell be stored. This indication can be checked each time a frame is generated to determine if it is appropriate to include a frame relay format congestion indication in the frame).

Regarding **Claim 4**, Paquette disclose all aspects of the claimed invention, except *comprising within the upstream port, allocating one or more set aside queues in dependence on messages received from the first port.*

Carlsen is the same field of invention teaches comprising within the upstream port, allocating one or more set aside queues in dependence on messages received from the first port*(page 10, and ingress memory subsystem so as to establish a separate queue for each destination on the switch).*

Regarding **Claim 5**, Paquette discloses within the upstream port controlling data flow into and out of the set aside queue in dependence on the congestion*(column 7, the upstream ingress data rate of the ATM switch 54 is reduced, thereby helping reduce (controlling) the data congestion at egress port of ATM switch 54)* .

Regarding **Claim 6**, Paquette disclose all aspects of the claimed invention, except *comprising de- allocating the one of more set aside queues in dependence on one or more criteria.*

Carlsen is the same field of invention teaches comprising de- allocating the one of more set aside queues in dependence on one or more criteria*(page 4, Each port 110*

on the PPD 130 is allocated a separate portion of the buffer 320. Alternatively, each port 110 could be given a separate physical buffer 320. This buffer 320 is also known as the credit memory, since the BB-Credit flow control between switch 100 and the upstream device is based upon the size or credits of this memory 320. The memory controller 310 identifies new Fibre Channel frames arriving in credit memory 320, and shares the frame's destination ID and its location in credit memory 320 with the inbound routing module 330).

Regarding **Claim 7**, Paquette disclose all aspects of the claimed invention, except in *which the one or more criteria include the amount of data in the set aside queue.*

Carlsen is the same field of invention teaches in which the one or more criteria include the amount of data in the set aside queue *(page 4, The memory controller module 310 is responsible for storing the incoming data frame on the inbound frame buffer memory 320. Each port 110 on the PPD 130 is allocated a separate portion of the buffer 320).*

Regarding **Claim 8**, Paquette disclose all aspects of the claimed invention, except *in which the message requesting establishment of a set aside queue is discarded by the upstream port if the congestion identified in the request is further downstream than the original congestion.*

Carlsen is the same field of invention teaches in which the message requesting establishment of a set aside queue is discarded by the upstream port if the congestion identified in the request is further downstream than the original congestion*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*.

Regarding **Claim 9**, Paquette disclose all aspects of the claimed invention, except *in which the message indicating that congestion has occurred includes a token to be kept by the upstream port to identify the upstream port as a leaf port within a congestion tree.*

Carlsen is the same field of invention teaches in which the message indicating that congestion has occurred includes a token to be kept by the upstream port to identify the upstream port as a leaf port within a congestion tree*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*.

Regarding **Claim 10**, Paquette disclose all aspects of the claimed invention, except *storing data about the number of leaves in the congestion tree in each switch in the tree.*

Carlsen is the same field of invention teaches storing data about the number of leaves in the congestion tree in each switch in the tree *(page 5, the iPQ 190 organizes the data in its iMS 180 into a number of different virtual output queues. To avoid head-of-line blocking, a separate is established for every destination within the switch 270. In switch 270, this means that there are at least five hundred forty-four V-0-Qs 290 in iMS 180. The iMS 180 places incoming data on the appropriate V-0-Q 290 according to the switch destination address assigned to that data by the routing module 330 in PPD 272).*

Regarding **Claim 11**, Paquette disclose all aspects of the claimed invention, except *in which when a set aside queue is de-allocated, the leaf token is returned by the upstream switch to the adjacent downstream switch, the method comprising maintaining a record relating to leaf switches that have returned a leaf token.*

Carlsen is the same field of invention teaches in which when a set aside queue is de-allocated, the leaf token is returned by the upstream switch to the adjacent downstream switch, the method comprising maintaining a record relating to leaf switches that have returned a leaf token*(page 5, The cells are then removed from the 0-COS-Q 280 and are submitted to the PPD 262 for the egress port 114, which converts*

the cells back into a Fibre Channel frame and sends it across the ISL 230 to the downstream switch 270).

Regarding **Claim 12**, Paquette disclose all aspects of the claimed invention, except *when a subsequent packet is received by the upstream port, if it is destined for the congestion, storing it in the set aside queue, and if it is not destined for the congestion, storing it in a cold queue at the upstream port.*

Carlsen is the same field of invention teaches when a subsequent packet is received by the upstream port*(page 1, sends an XOFF message so informing the upstream switch)*, if it is destined for the congestion, storing it in the set aside queue, and if it is not destined for the congestion, storing it in a cold queue at the upstream port*(page 4, page 4, See Fig 1,shows queue control module 400 which shows The queue control module 400 has four primary components, namely the deferred queue 402, the backup queue 404, the header select logic 406, and the XOFF mask 408, these components work in conjunction with the XON History register 420 and the cell credit manager or credit module 440 to control ingress queuing and to assist in managing flow control within switch 100. The deferred queue 402 stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114).*

Regarding **Claim 13**, Paquette disclose all aspects of the claimed invention, except *when a packet is received at the upstream port that is destined for the*

congestion, storing a marker in the cold queue to provide an indication of the order in which the congestion-bound packet was received with respect to packets already in the cold queue which are also destined for the congestion, storing a marker in the cold queue to provide an indication of the order in which the congestion-bound packet was received with respect to packets already in the cold queue which are also destined for the congestion.

Carlsen is the same field of invention teaches when a packet is received at the upstream port that is destined for the congestion*(page 4, See Fig 1,shows queue control module 400 which shows The queue control module 400 has four primary components, namely the deferred queue 402, the backup queue 404, the header select logic 406, and the XOFF mask 408, these components work in conjunction with the XON History register 420 and the cell credit manager or credit module 440 to control ingress queuing and to assist in managing flow control within switch 100. The deferred queue 402 stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114)*, storing a marker in the cold queue to provide an indication of the order in which the congestion-bound packet was received with respect to packets already in the cold queue which are also destined for the congestion *(page 7, the lookup table 410 in order to generate the defer signal 414. This means that whenever the gross-xoff signal 522 is set, the defer signal 414 will also be set, effectively stopping all traffic to the iMS 180, when the defer signal 414 is set, it informs the header select logic 406 and the remaining elements of the queue module*

400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402).

Regarding **Claim 14**, Paquette discloses the memory is provided as an associative memory *(column 6, The memory 32 be a single memory device or a plurality of memory devices. Such a memory device is a random access memory, floppy disk memory, system memory, existing memory within the internetworking switch 10, hard drive, magnetic tape memory, and or any device that stores digital information).*

Regarding **Claim 15**, Paquette discloses the associative memory is equipped with a binary command vector operable to engage search logic which in one case is for a set aside queue formation request and thereby performs a minimal length matching operation on the contents of the associative memory and in the case of the assignment of a data packet to a pre-existing set aside queue, thereby performs a maximal length matching operation on the contents of the associative memory*(column 6, The memory 32 be a single memory device or a plurality of memory devices. Such a memory device is a random access memory, floppy disk memory, system memory, existing memory within the internetworking switch 10, hard drive, magnetic tape memory, and or any device that stores digital information, when the processing module 28 implements one or more of its function using a state machine or logic circuitry, the memory containing the corresponding operational instructions is embedded in the circuitry comprising the state machine or logic circuitry).*

Regarding **Claim 16**, Paquette discloses following receipt of a set aside queue establishment message by the upstream switch, the resulting binary vector that represents the path between the current switch network position and the final congested network destination is left aligned to the index of the current switch position and equipped with a mask, the mask being the size of the bit field describing the route to the congested destination prior to storage in an associative memory element*(column 5, ATM available bit rate (ABR) connections include a feedback mechanism that allows downstream entities to 40 communicate data rate information back to upstream sources. With binary marking, the Explicit Forward Congestion indication bit to the ATM cell header is used to communicate congestion within the network, with relative marking the C1 and N1 bits within the resource management cells are used to communication congestion).*

Regarding **Claim 17**, Paquette disclose all aspects of the claimed invention, except *data applied to a search register of the associative memory is prior to searching the associative memory elements at its current switch position in a network, left aligned to the index of the current switch network position and equipped with a mask for the purposes of comparison with the stored elements of the associative memory.*

Carlsen is the same field of invention teaches data applied to a search register of the associative memory is prior to searching the associative memory elements at its current switch position in a network, left aligned to the index of the current switch

network position and equipped with a mask for the purposes of comparison with the stored elements of the associative memory*(page 2, XON history register(search register) that also tracks the current status of all ports, this XON history register receives the XOFF signals from the cell credit manager and reflects those changes in its own lookup table(index). The values in the look up table in the XON history register are then used to periodically update the values in the look up table in the XOFF mask).*

9. **Claims 18** are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view of Carlsen et al (20050088969, Apr. 28, 2005), furthermore Gupta et al. (US 7286552, Oct. 23, 2007)

Regarding **Claim 18**, The combination of Paquette and Carlsen disclose all aspects of the claimed invention, except *wherein a pair of additional inverted bits are used to delineate the start and stop positions of the active section of a turnpool thereby to create a sized mask.*

Furthermore, Gupta is the same field of invention teaches wherein a pair of additional inverted bits are used to delineate the start and stop positions of the active section of a turnpool thereby to create a sized mask*(column 8, the bitmask comprises 16 bits(mask size), with one bit for each of the blades 102. For instance, in the egress queue flags 124 on Blade 2, the fourth egress queue flag, representing the state of backplane congestion to Blade 4, may have a I in the 5' and 9' bits, and zeroes in the 2 and remaining bits).*

The combined Carlsen and Gupta are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of the combined Paquette and Carlsen to include the teaching of Gupta because it is providing an egress queue manager that receives a message from another blade further propagates the message to the ingress queue manager on its own blade, where the message causes the ingress queue manager to reduce the rate at which packets are dequeued from any of the ingress queues on that blade that may also be responsible for the congestion, the egress queue manager reduces the rate at which packets are enqueued to the backplane port mapped to congested backplane Queue, in which as a result, quality of service policies are propagated across the switched backplane.

10. **Claims 19-25** are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view of Carlsen et al (20050088969, Apr. 28, 2005)

Regarding **Claim 19**, Paquette discloses the first message requesting establishment at the upstream port of a set aside queue for storing data packets received by the upstream switch destined for the source of congestion*(See Fig 3, column 6, the internetworking module 28(shows block diagram of internetworking switch 126) store indication of the congestion information in the congestion register 34)*, the

protocol operating such that when said congestion clears*(column 3, it is desirable to reduce the inflow of ingress data for the switch 130 until the congestion has been reduced or eliminated(congestion clears))*, the established set aside queue is de-allocated and the corresponding token is passed downstream in the direction of the previously congested port*(column 8, as a result of receiving the congestion indication cell, the module performing the method of reduce a transmission rate corresponding to an egress path (downstream direction) directed toward a source of the congestion indication cell)*.

Paquette discloses all aspects of the claimed invention, except *a signaling protocol for managing congestion within a network of switches, the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port, the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port, the message including a token for storage by said upstream port.*

Carlsen is the same field of invention teaches a signaling protocol for managing congestion within a network of switches *(page 1, maintaining and updating (managing) a congestion status for all destination ports within a switch)*, the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port *(page 1, This flow control technique monitors the congestion status of all destination ports at the downstream switch. If a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an message so informing the upstream switch)*, the

message including a token for storage by said upstream port*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*.

Paquette and Carlsen are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Paquette to include the teaching of Carlsen because it is providing a technique for noticing port congestion and informing ingress ports of the congestion.

Regarding **Claim 20**, Paquette discloses an acknowledgement message for sending from the upstream port to the first port to confirm establishment of the requested set aside queue *(column 4, any ATM congestion information that was present in received ATM cells was treated with a minimal level of acknowledgment by frame relay portions of the switch such that an adequate response that had the potential to reduce congestion did not occur)*.

Regarding **Claim 21**, Paquette discloses a flow control message for sending from the first port to the upstream port including data relating to the congestion at the first

port *(column 2, This allows (control) upstream switches to detect downstream congestion and reduce the rate (flow) at which frames are transferred from their ingress ports (first port) to their egress ports that are providing data to the area that is congested)*.

Regarding **Claim 22**, Paquette disclose all aspects of the claimed invention, except *a notification for sending from the upstream port to the first port informing the first port of de- allocation of the set aside queue when a set aside queue is no longer required.*

Carlsen is the same field of invention teaches a notification for sending from the upstream port to the first port informing the first port of de- allocation of the set aside queue when a set aside queue is no longer required*(page 7, a force defer signal that is controlled by the microprocessor 124 is also able to cause the defer signal 414 to go on. When the defer signal 414 is set, it informs the header select logic 406 and the remaining elements of the queue module 400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402)*.

Regarding **Claim 23**, Paquette disclose all aspects of the claimed invention, except *a message for informing the first port that the upstream port has de-allocated an old set aside queue*.

Carlsen is the same field of invention teaches a message for informing the first port that the upstream port has de-allocated an old set aside queue *(page 7, a force defer signal that is controlled by the microprocessor 124 is also able to cause the defer signal 414 to go on. When the defer signal 414 is set, it informs the header select logic 406 and the remaining elements of the queue module 400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402.*

Regarding **Claim 24**, Paquette disclose all aspects of the claimed invention, except *a message for sending to the upstream port from the first port instructing the upstream port to modulate its rate of packet transmission to a specified downstream set aside queue.*

Carlsen is the same field of invention teaches a message for sending to the upstream port from the first port instructing the upstream port to modulate its rate of packet transmission to a specified downstream set aside queue *(page 2, See Fig. 4, FIG. 4 is a block diagram showing the queuing utilized in an upstream switch and a downstream switch communicating over an interswitch link).*

Regarding **Claim 25**, Paquette discloses when a certain amount of data packets are stored Within the set aside queue in said upstream port a message containing a token is sent by said upstream port to a further upstream port requesting establishment of a set aside queue at said further upstream port for storage of data packets destined

for the first port at which congestion has been detected*(column2-3, See Figs 1-6, shows a network that includes a source 102, a destination 142, frame relay switches 110 and 130, internetworking switches 122 and 126, and ATM switch 124. The source 102 generates data to be transmitted to the destination 142. The data stream from the source is carried through the frame relay switch 110, ATM cloud 120, and the frame relay switch 130 to the destination 142, If congestion occurs at the congested port 132 of the relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126, the BECN indication is intended to inform upstream neighbors of the frame relay switch 130 that the switch is overloaded, and additional delays may be incurred by data passing through the switch).*

11. **Claims 26-28, and 35** are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view of Carlsen et al (20050088969, Apr. 28, 2005)

Regarding **Claim 26**, Paquette discloses a switch for use in a network of switches, the switch comprising two or more ingress ports*(column3,This can be accomplished through the use of virtual source/virtual destination (VSNVD) instances within the ingress and egress ports 125 and 127)*; two or more egress ports*(column3,This can be accomplished through the use of virtual source/virtual destination (VSNVD) instances within the ingress and egress ports 125 and 127)*; a switch fabric for selectively coupling data packets received at one or more of the ingress

ports to one or more of the egress ports*(column4, the switch 54 has a function operating on one or more or both of its ingress egress ports)*;

storage for, in response to a request for storage of data packets destined for a downstream congested port*(column2-3, See Figs 1-6, shows a network that includes a source 102, a destination 142, frame relay switches 110 and 130, internetworking switches 122 and 126, and ATM switch 124. The source 102 generates data to be transmitted to the destination 142. The data stream from the source is carried through the frame relay switch 110, ATM cloud 120, and the frame relay switch 130 to the destination 142, If congestion occurs at the congested port 132 of the relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126, the BECN indication is intended to inform upstream neighbors of the frame relay switch 130 that the switch is overloaded, and additional delays may be incurred by data passing through the switch)*, storing selected data packets*(column6, the internetworking module 28 may store a portion or indication Of the congestion information in the congestion register 34)*; and request generation means arranged to send a request to a further upstream port to request storage of data packets destined for the downstream congested port *(column2-3, See Figs 1-6, shows a network that includes a source 102, a destination 142, frame relay switches 110 and 130, internetworking switches 122 and 126, and ATM switch 124. The source 102 generates data to be transmitted to the destination 142. The data stream from the source is carried through the frame relay switch 110, ATM cloud 120, and the frame relay switch 130 to the destination 142, If congestion occurs at the congested port 132*

of the relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126, the BECN indication is intended to inform upstream neighbors of the frame relay switch 130 that the switch is overloaded, and additional delays may be incurred by data passing through the switch).

Paquette discloses all aspects of the claimed invention, except selection means, for selectively routing a received data packet to the storage in dependence on the detected desired destination of the packet; at said further upstream port when a threshold amount of data packets destined for the downstream congested port are stored in the storage.

Carlsen is the same field of invention teaches selection means, for selectively routing a received data packet to the storage in dependence on the detected desired destination of the packet*(page 1, Routing tables can be shared between multiple switches in a fabric over an ISL, allowing one switch to know when a frame must be sent over the ISL to another switch in order to reach its destination port)*; at said further upstream port when a threshold amount of data packets destined for the downstream congested port are stored in the storage*(page 1, The cell credit manager tracks credits associated with each virtual output queue in order to obtain knowledge about the amount of data within each queue. If the credit count in the cell credit manager drops below a threshold value, the cell credit manager views the associated port as a congested port and asserts an XOFF Signal).*

Paquette and Carlsen are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Paquette to include the teaching of Carlsen because it is providing a technique for noticing port congestion and informing ingress ports of the congestion.

Regarding **Claim 27**, Paquette disclose all aspects of the claimed invention, except *in which the selection means comprises a content addressable memory.*

Carlsen is the same field of invention teaches a message in which the selection means comprises a content addressable memory*(page 3, The iMS 180 assigns this packet a packet ID (or "PID") that indicates the cell buffer address in the iMS 180(addressable memory) where the packet is stored).*

Regarding **Claim 28**, Paquette disclose all aspects of the claimed invention, except *a set aside queue is only formed in response to the request if one or more of a number of Criteria are satisfied.*

Carlsen is the same field of invention teaches a set aside queue is only formed in response to the request if one or more of a number of Criteria are satisfied*(page 4, Each port 110 on the PPD 130 is allocated a separate portion of the buffer 320. Alternatively, each port 110 could be given a separate physical buffer 320. This buffer 320 is also known as the credit memory, since the BB-Credit flow control between switch 100 and the upstream device is based upon the size or credits of this memory 320. The memory controller 310 identifies new Fibre Channel frames arriving in credit*

memory 320, and shares the frame's destination ID and its location in credit memory 320 with the inbound routing module 330).

Regarding **Claim 35**, Paquette discloses a network of interconnected switches connected in a topology, the network comprising a plurality of switches wherein at least two of the switches are switches according to claim 26*(column 1, Communication networks are known to include a plurality of switches that transport user data between calling parties and called parties).*

12. **Claims 29-34** are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view of Carlsen et al (20050088969, Apr. 28, 2005)

Regarding **Claim 29**, Paquette discloses a switch for use in a network of switches, the switch comprising a plurality of ingress ports for receiving data packets *(column3, This can be accomplished through the use of virtual source/virtual destination (VSNVD) instances within the ingress and egress ports 125 and 127(plurality))*; a plurality of output ports for transmitting data packets *(column3,This can be accomplished through the use of virtual source/virtual destination (VSNVD) instances within the ingress and egress ports (output ports)125 and 127(plurality))*; wherein at least one of the ingress ports or egress ports comprises storage for storing details of a

congestion tree comprising at least three connected ports in which in use, the switch is located*(column6, The frame relay/ATM internetworking module 28 is operably coupled to a congestion register 34, which may be a flag Used to-stores an indication that congestion has been detected)*.

Paquette discloses all aspects of the claimed invention, except *control means for selectively routing data packets received at one or more of the ingress ports to one or more of the egress ports.*

Carlsen is the same field of invention teaches control means for selectively routing data packets received at one or more of the ingress ports to one or more of the egress ports*(page 1, The switch uses a routing table and the source and destination information found within the Fibre Channel frame header to route the Fibre Channel frames from one port to another)*.

Paquette and Carlsen are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Paquette to include the teaching of Carlsen because it is providing a technique for noticing port congestion and informing ingress ports of the congestion.

Regarding **Claim 30**, Paquette disclose all aspects of the claimed invention, except *in which at least one of the ingress or egress ports comprises means for*

generating a Set aside queue for storage of received data packets destined for a port in the congestion tree.

Carlsen is the same field of invention teaches in which at least one of the ingress or egress ports comprises means for generating a Set aside queue for storage of received data packets destined for a port in the congestion tree*(page 4, See Fig 1,shows queue control module 400 which shows The queue control module 400 has four primary components, namely the deferred queue 402, the backup queue 404, the header select logic 406, and the XOFF mask 408, these components work in conjunction with the XON History register 420 and the cell credit manager or credit module 440 to control ingress queuing and to assist in managing flow control within switch 100. The deferred queue 402 stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114).*

Regarding **Claim 31**, Paquette discloses in which at least one of the ingress or egress ports is adapted in use to generate a set aside queue in response to a request received by the ingress or egress port containing information about congestion at a downstream port*(column6, congestion information relayed in communication networks is used to inform switches upstream and downstream that a switch or port is congested)*, the request containing information about a congested route between the switch and the downstream port*(column6, congestion information relayed in communication networks is used to inform switches upstream and downstream that a switch or port is congested).*

Regarding **Claim 32**, Paquette discloses determine from the data packet its eventual destination*(column2-3, The data stream from the source is carried through the frame relay switch 110, the ATM cloud 120, and the frame relay switch 130 to the destination 142. Along this path, the data is carried using both ATM and frame relay protocols).*

Paquette disclose all aspects of the claimed invention, except *in which at least one of the ingress or egress ports comprises an ingress or egress engine adapted in use to receive a data packet; and, if the data packet is destined for a congested port to store the packet in the set aside queue and flit is destined for an uncongested port to store the packet in a cold queue for transmission to the uncongested port.*

Carlsen is the same field of invention teaches in which at least one of the ingress or egress ports comprises an ingress or egress engine adapted in use to receive a data packet*(page 2, mask is utilized at each ingress to the switch, each XOFF mask receives the XOFF signal, and assigns the designated destination port to the indicated XOFFKON status. The XOFF mask maintains the status for every destination port in a look up table that assigns a single bit to each port. If the bit assigned to a port is set to "1," the port has an XOFF status. If the bit is "0," the port has an XON status and is free to receive data)*; and, if the data packet is destined for a congested port to store the packet in the set aside queue and flit is destined for an uncongested port to store the packet in a cold queue for transmission to the uncongested port*(page 1, Deferred queuing requires that all incoming data frames that are destined for a congested port be*

placed in a deferred queue (cold queue), which keeps these frames from unduly interfering with frames destined for uncongested ports. This technique requires a dependable method for determining the congestion status for all destinations at each input port).

Regarding **Claim 33**, Paquette discloses in which the ingress or egress engine are embodied in a content addressable memory*(column6, that when the processing module 28 implements one or more of its function using a state machine or logic circuitry, the memory containing the corresponding operational instructions is embedded in the state machine or logic circuitry).*

Regarding **Claim 34**, Paquette discloses sending a message to an upstream port connected to the first ingress or egress port indicating that congestion has occurred at a particular port and requesting storage at the upstream port of data packets destined for that port*(column2-3, See Figs 1-6, shows a network that includes a source 102, a destination 142, frame relay switches 110 and 130, internetworking switches 122 and 126, and ATM switch 124. The source 102 generates data to be transmitted to the destination 142. The data stream from the source is carried through the frame relay switch 110, ATM cloud 120, and the frame relay switch 130 to the destination 142, If congestion occurs at the congested port 132 of the relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126, the BECN indication is intended to inform upstream neighbors of the frame*

relay switch 130 that the switch is overloaded, and additional delays may be incurred by data passing through the switch); and in dependence on the amount of data packets destined for the congested port stored at said upstream port*(column 1, The congestion information is network service dependent, in ATM systems, congestion can be indicated between sources and destinations through the use of resource management (RM) and backward resource management (BRM) cells (amount of data packets) that carry congestion indications)*, sending from the upstream port to a further upstream port a message informing said further upstream port of the congestion at the first ingress or egress congested port*(column2-3, See Figs 1-6, shows a network that includes a source 102, a destination 142, frame relay switches 110 and 130, internetworking switches 122 and 126, and ATM switch 124. The source 102 generates data to be transmitted to the destination 142. The data stream from the source is carried through the frame relay switch 110, ATM cloud 120, and the frame relay switch 130 to the destination 142, If congestion occurs at the congested port 132 of the relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126, the BECN indication is intended to inform upstream neighbors of the frame relay switch 130 that the switch is overloaded, and additional delays may be incurred by data passing through the switch)*, said further upstream port storing at said further upstream port data packets destined for the first ingress or egress congested port*(See Fig 3, column 6, the internetworking module 28(shows block diagram of internetworking switch 126) store indication of the congestion information in the congestion register 34)*.

Paquette disclose all aspects of the claimed invention, except *the switch being controllable, when connected in a network of switches to execute the method of congestion management within a switch or network of connected switches wherein the or each of the switches has a plurality of ingress ports and a plurality of egress ports; the method comprising when Congestion is detected at a first ingress or egress port.*

Carlsen is the same field of invention teaches the switch being controllable, when connected in a network of switches to execute the method of congestion management within a switch or network of connected switches wherein the or each of the switches has a plurality of ingress ports and a plurality of egress ports*(page 1, Fibre Channel is used to connect one or more computers or workstations together with one or more storage devices, each of these devices is considered a node. One node can be connected directly to another, or can be interconnected such as by means of a Fibre Channel fabric. The fabric can be a single Fibre Channel switch, or a group of switches acting together. Technically, the N_port (node ports) on each node are connected to F_qorts (fabric ports) on the switch. Multiple Fibre Channel switches can be combined into a single fabric. The switches connect to each other via E-Port (Expansion Port) forming an interswitch link, or ISL)*, the method comprising when Congestion is detected at a first ingress or egress port*(page 1, If a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected)*.

13. **Claims 36-38** are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view of Carlsen et al (20050088969, Apr. 28, 2005)

Regarding **Claim 36**, Paquette discloses the first message requesting storage of data packets received by said upstream port destined for the congested first port*(See Fig 3, column 6, the internetworking module 28(shows block diagram of internetworking switch 126) store indication of the congestion information in the congestion register 34)*; said message requesting storage of data packets destined for the congested first port received by said further upstream port*(column2-3, See Figs 1-6, shows a network that includes a source 102, a destination 142, frame relay switches 110 and 130, internetworking switches 122 and 126, and ATM switch 124. The source 102 generates data to be transmitted to the destination 142. The data stream from the source is carried through the frame relay switch 110, ATM cloud 120, and the frame relay switch 130 to the destination 142, If congestion occurs at the congested port 132 of the relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126, the BECN indication is intended to inform upstream neighbors of the frame relay switch 130 that the switch is overloaded, and additional delays may be incurred by data passing through the switch).*

Paquette disclose all aspects of the claimed invention, except *a signaling protocol for managing congestion within a network of switches, the protocol comprising a first message for sending from a first port at which congestion is detected to an*

upstream port connected to the first port, and, a second message for sending by the upstream port to a port further upstream when a threshold amount of data packets destined for the congested first port have been received and stored by the said upstream port.

Carlsen is the same field of invention teaches a signaling protocol for managing congestion within a network of switches*(page 1, maintaining and updating (managing)a congestion status for all destination ports within a switch),*
the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port*(page 1, This flow control technique monitors the congestion status of all destination ports at the downstream switch. If a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an message so informing the upstream switch)*, and, a second message for sending by the upstream port to a port further upstream when a threshold amount of data packets destined for the congested first port have been received and stored by the said upstream port*(page 1, The cell credit manager tracks credits associated with each virtual output queue in order to obtain knowledge about the amount of data within each queue. If the credit count in the cell credit manager drops below a threshold value, the cell credit manager views the associated port as a congested port and asserts an XOFF Signal).*

Paquette and Carlsen are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Paquette to include the teaching of Carlsen because it is providing a technique for noticing port congestion and informing ingress ports of the congestion.

Regarding **Claim 37**, Paquette discloses upstream port and said further upstream port respectively are controlled to allocate a set aside queue at said upstream port or at said further upstream port respectively for storage of data packets destined for the congested port*(See Fig 3, column 6, the internetworking module 28(shows block diagram of internetworking switch 126) store indication of the congestion information in the congestion register 34)*.

Paquette disclose all aspects of the claimed invention, except *when storage is requested by either a message from the congested port or the message from said upstream port.*

Carlsen is the same field of invention teaches when storage is requested by either a message from the congested port or the message from said upstream port*(page 1, This flow control technique monitors the congestion status of all destination ports at the downstream switch. If a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an message so informing the upstream switch)*.

Regarding **Claim 38**, Paquette disclose all aspects of the claimed invention, except *when the set-aside- queue at either or both of said upstream port and said further upstream port have become empty said set- aside-queue may be deallocated.*

Carlsen is the same field of invention teaches when the set-aside- queue at either or both of said upstream port and said further upstream port have become empty said set- aside-queue may be deallocated*(page 7, a force defer signal that is controlled by the microprocessor 124 is also able to cause the defer signal 414 to go on. When the defer signal 414 is set, it informs the header select logic 406 and the remaining elements of the queue module 400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402).*

14. **Claims 39-41** are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view of Carlsen et al (20050088969, Apr. 28, 2005)

Regarding **Claim 39**, Paquette discloses an endstation for use in a network of interconnected switches*(column 1, Communication networks are known to include a plurality of switches that transport user data between calling parties and called parties)*, the end station comprising: an ingress port for receiving data packets from a network to which in use the end station is connected*(column 2-3, The data stream from the source is carried through the frame relay switch 110, the ATM cloud 120, and the frame relay*

switch 130 to the destination 142); an egress port for providing data packets to a network to which in use the end station is connected*(See Fig 1, column 2-3, shows egress port 127 coupled to switch 130. This can be accomplished through the use of virtual source/virtual destination (VSNVD) instances within the ingress and egress ports 125 and 127)*; in which the egress port includes means operable in use to receive a message from a downstream port*(column6, congestion information relayed in communication networks is used to inform switches upstream and downstream that a switch or port is congested)*.

Paquette disclose all aspects of the claimed invention, except *the message containing data relating to a congested port further downstream than the downstream port and a request to provide storage for data packets destined for the congested port further downstream.*

Carlsen is the same field of invention teaches the message containing data relating to a congested port further downstream than the downstream port and a request to provide storage for data packets destined for the congested port further downstream*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*.

Paquette and Carlsen are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Paquette to include the teaching of Carlsen because it is providing a technique for noticing port congestion and informing ingress ports of the congestion.

Regarding **Claim 40**, Paquette disclose all aspects of the claimed invention, except *a control device operable in use to, in response to the message received from the network, allocate a set-aside queue for storing of data packets destined for the congested port.*

Carlsen is the same field of invention teaches a control device operable in use to, in response to the message received from the network*(page4, The queue control module 400 handles the queuing and ordering of data),* allocate a set-aside queue for storing of data packets destined for the congested port*(page 1, The cell credit manager tracks credits associated with each virtual output queue in order to obtain knowledge about the amount of data within each queue. If the credit count in the cell credit manager drops below a threshold value, the cell credit manager views the associated port as a congested port and asserts an XOFF Signal).*

Regarding **Claim 41**, Paquette discloses the first message requesting establishment at the upstream port of a set aside queue for storing data packets received by the upstream switch destined for the source of congestion*(See Fig 3,*

column 6, the internetworking module 28(shows block diagram of internetworking switch 126) store indication of the congestion information in the congestion register 34).

Paquette disclose all aspects of the claimed invention, except *adapted for use within the signaling, protocol of for managing congestion within a network of switches, the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port, the message including a token for storage by said upstream port.*

Carlsen is the same field of invention teaches adapted for use within the signaling*(A congestion notification mechanism(signaling protocol) provides a congestion status for all destinations in a switch at each ingress port)*, protocol of for managing congestion within a network of switches*(page 1, a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch, the upstream switch will then stop sending data on the affected virtual channel(particular port))*, the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port*(page 5, the upstream switch by performing flow control for the virtual channel 240 assigned to that V-I-Q 282)*, the message including a token for storage by said upstream port*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing*

the upstream switch. The upstream switch will then stop sending data on the affected virtual channel).

15.

Claims 42-47 are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view of Carlsen et al (20050088969, Apr. 28, 2005), furthermore Gupta et al. (US 7286552, Oct. 23, 2007)

Regarding **Claim 42**, Paquette discloses the step of requesting storage at the upstream port of data packets destined*(See Fig 3, column 6, the internetworking module 28(shows block diagram of internetworking switch 126) store indication of the congestion information in the congestion register 34)*.

Paquette disclose all aspects of the claimed invention, except *for the congested port comprises requesting establishment of a set aside queue for storage of said data packets; and wherein data packets stored at said further upstream port are stored in a set aside queue for data packets destined for the congested port thereby establishing an original congestion tree; and when a subsequent request for storage of data packets is received at any of the ports in the original congestion tree in respect of congestion at a port further downstream than the root of the original congestion tree; accepting the request at the port such that data packets destined for said further downstream port are stored at the port at which the request was received thereby extending the congestion tree downstream.*

Carlsen is the same field of invention teaches data packets stored at said further upstream port are stored in a set aside queue for data packets destined for the congested port thereby establishing an original congestion tree *(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)* and when a subsequent request for storage of data packets is received at any of the ports in the original congestion tree in respect of congestion at a port further downstream than the root of the original congestion tree*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*, accepting the request at the port such that data packets destined for said further downstream port are stored at the port at which the request was received thereby extending the congestion tree downstream*(page 4, See Fig 1,shows queue control module 400 which shows The queue control module 400 has four primary components, namely the deferred queue 402, the backup queue 404, the header select logic 406, and the XOFF mask 408, these components work in conjunction with the XON History register 420 and the cell credit manager or credit module 440 to control ingress queuing and to assist in managing flow control within switch 100. The deferred*

queue 402 stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114).

Paquette and Carlsen are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Paquette to include the teaching of Carlsen because it is providing a technique for noticing port congestion and informing ingress ports of the congestion.

Furthermore, Gupta is the same field of invention teaches for the congested port comprises requesting establishment of a set aside queue for storage of said data packets*(column 16, At decision block 360, before resuming normal packet rates for dequeuing packets from the identified ingress queues, the ingress queue manager first checks whether congestion on all of the egress queues to which the identified ingress queues can send has now subsided).*

The combined Carlsen and Gupta are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of the combined Paquette and Carlsen to include the teaching of Gupta because it is providing an egress queue manager that receives a message from another blade further propagates the message to the ingress queue manager on its own blade, where the message causes the ingress queue manager to reduce the rate at which packets are dequeued from any of the ingress queues on that

blade that may also be responsible for the congestion, the egress queue manager reduces the rate at which packets are enqueued to the backplane port mapped to congested backplane Queue, in which as a result, quality of service policies are propagated across the switched backplane.

Regarding **Claim 43**, Paquette discloses upon receipt of a request for establishment of a set aside queue at any of said ports in said original congestion tree creating an entry in a memory at the said port to indicate that congestion has occurred at a particular port*(column2-3, See Figs 1-6, shows a network that includes a source 102, a destination 142, frame relay switches 110 and 130, internetworking switches 122 and 126, and ATM switch 124. The source 102 generates data to be transmitted to the destination 142. The data stream from the source is carried through the frame relay switch 110, ATM cloud 120, and the frame relay switch 130 to the destination 142, If congestion occurs at the congested port 132 of the relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126, the BECN indication is intended to inform upstream neighbors of the frame relay switch 130 that the switch is overloaded, and additional delays may be incurred by data passing through the switch)*; and checking data packets subsequently received at the said port against the entry in the memory and, if a data packet is directed to the congested port, storing said data packet in the corresponding set aside queue*(column 8, When the congestion cell is detected, an indication of the receipt of the congestion indication cell be stored. This indication can be checked each time a frame is generated*

to determine if it is appropriate to include a frame relay format congestion indication in the frame).

Paquette disclose all aspects of the claimed invention, except *a data packet is not directed to the or another congested port, storing the data packet in a cold queue for onward transmission.*

Carlsen is the same field of invention teaches a data packet is not directed to the or another congested port, storing the data packet in a cold queue for onward transmission*(page 1, Deferred queuing requires that all incoming data frames that are destined for a congested port be placed in a deferred queue (cold queue), which keeps these frames from unduly interfering with frames destined for uncongested ports. This technique requires a dependable method for determining the congestion status for all destinations at each input port).*

Regarding **Claim 44**, Paquette disclose all aspects of the claimed invention, except *establishing a set aside queue in response to every request for establishment of a set aside queue received at the port, the newly established set aside queue existing concurrently with any already existing set aside queues.*

Carlsen is the same field of invention teaches establishing a set aside queue in response to every request for establishment of a set aside queue received at the port, the newly established set aside queue existing concurrently with any already existing set aside queues*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested,*

the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel).

Regarding **Claim 45**, Paquette disclose all aspects of the claimed invention, except *when a request is for establishment of a set aside queue in respect of a port further downstream than the root of the original congestion tree.*

Carlsen is the same field of invention teaches when a request is for establishment of a set aside queue in respect of a port further downstream than the root of the original congestion tree*(page 5,See Fig 4, FIG. 4 also shows a virtual input queue structure 282 within each ingress port 112 in downstream switch 270. Each of these V-I-Qs 282 corresponds to one of the virtual channels 240 on the ISL 230 link, which in turn corresponds to one of the 0-COS-Qs 280 on the upstream switch)*; placing a link in an existing set aside queue to later activate the newly established set aside queue.

Regarding **Claim 46**, Paquette disclose all aspects of the claimed invention, except *a request is for establishment of a set aside queue in respect of a port further upstream than the root of the original congestion tree, overwriting the shortest existing set aside queue with a newly established set aside queue and placing a link in the cold queue to the newly established set aside queue.*

Carlsen is the same field of invention teaches a request is for establishment of a set aside queue in respect of a port further upstream than the root of the original congestion tree*(page 1, flow control technique monitors the congestion status of all*

destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel), overwriting the shortest existing set aside queue with a newly established set aside queue and placing a link in the cold queue to the newly established set aside queue*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*.

Regarding **Claim 47**, Paquette disclose all aspects of the claimed invention, except *a request is for establishment of a set aside queue in respect of a port further downstream than the root of the original congestion tree, overwriting the existing shortest set aside queue with a newly established set aside queue corresponding to the received request; and placing a link to the newly established set aside queue in the already existing set aside queue that is the longest already existing set aside queue and that is shorter than the newly established set aside queue.*

Carlsen is the same field of invention teaches a request is for establishment of a set aside queue in respect of a port further downstream than the root of the original congestion tree*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested,*

the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel), overwriting the existing shortest set aside queue with a newly established set aside queue corresponding to the received request*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*; and placing a link to the newly established set aside queue in the already existing set aside queue that is the longest already existing set aside queue and that is shorter than the newly established set aside queue*(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an XOFF message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*.

Response to Argument

16. Applicant's arguments, see pages 11 to 22 of the Applicant's Remark, filed 12/17/2009, with respect to the rejection(s) of claims 1-47 under 35 USC § 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejections are

made in view of Paquette et al. (US 6657963, Dec. 2, 2003), Carlsen et al (20050088969, Apr. 28, 2005), and Gupta et al. (US 7286552, Oct. 23, 2007).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IQBAL ZAIDI whose telephone number is (571)270-3897. The examiner can normally be reached on 7:30a.m to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGO RICKY can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ricky Ngo/ IZ
Supervisory Patent Examiner, Art Unit 2464